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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,228	10/14/2003	Wai Wong Chow	SC12309HP D01	2485

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EXAMINER

FARAHANI, DANA

ART UNIT	PAPER NUMBER
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2829

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/688,228

Applicant(s)

CHOW ET AL.

Examiner

Dana Farahani

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-25 is/are allowed.
- 6) ☒ Claim(s) 13-17 is/are rejected.
- 7) ☒ Claim(s) 18-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 13, 16 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Glenn et al., hereinafter Glenn (US Patent 6,492,699).

Regarding claim 13, Glenn discloses in figure 10 a method of making an image sensor device, comprising the steps of: providing a QFN type leadframe having a central die attach flag 1002 and an outer bonding pad area having a plurality of bonding pads 1008, wherein the flag has a perimeter ring (the outer areas wherein the bonding pads are formed in) that forms a bond line having a height that is about the same as a thickness of the lead frame; disposing a die attach material 1030 on the flag and within the perimeter ring; attaching a sensor integrated circuit (IC) 102 to the flag with the die

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attach material, the IC having a first surface with an active area and a peripheral bonding pad area, the peripheral bonding pad area including bonding pads 1064; electrically connecting respective ones of the IC bonding pads and corresponding ones of the leadframe bonding pads with a plurality of wires via wirebonding; forming a plurality of stud bumps 108 on the first surface of the IC; placing a transparent cover 110 over the IC active area such that the cover rests on stud bump, wherein light may pass through the cover and onto the IC active area; and forming a mold compound over the leadframe, wirebonds and a peripheral portion of the cover.

Regarding claim 16, the method of claim 13 further comprises the step of dispensing a clear compound 120 over the IC active area prior to placing the cover on the stud bumps, wherein the compound thickness is about the same as a height of the stud bumps.

Regarding claim 17, the cover compound comprises glass (see column 8, line 12).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn as applied to claim 13 above, and further in view of Lee et al., hereinafter Lee (US Patent 6,661,083).

Glenn substantially discloses the claimed invention, as discussed above, except for the bumps and wires being gold.

Lee discloses in figure 2, a package and lead frame with gold wires 62.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use gold wires as wires of the Glenn structure to benefit from the excellent conductivity associated with gold, and make the bumps from gold as well, since the material would have been readily available. See *In re Leshin*, 125 USPQ for the proposition that it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. Note that although Glenn does not disclose the height of the bumps is about 3 mils, it would have been obvious to adjust the height of the bumps to make the package suitable for different chip sizes. See *In re Rose*, 105 USPQ 237 (CCPA 1955) for the proposition that a change in a size of a component is generally recognized as being within the level of ordinary skill in the art.

Allowable Subject Matter

5. Claims 18-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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6. Claims 22-25 are allowed.
7. The primary reason for indication of allowability of claims 18-21 and 22-25 is inclusion therein of the limitation that of a vacuum hole at a central position under the flag, along with the other limitations in those claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (571)272-1706. The examiner can normally be reached on M-F 9:00AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571)272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Farahani



**B. WILLIAM BAUMEISTER
PRIMARY EXAMINER**